

REMARKS

For the reasons set out below, the applicant traverses the restriction requirement. In response to the restriction requirement, the applicants make a provisional election of the claims of Examiner's Group 1 (Claims 1, 7, 8, 9 and 10) and in response to the election of species requirement elect the species of claim 10. Claims 1, 7, 8 and 9 read on this species.

The opportunity has been taken to revise the claims into American format by transferring preferred features mentioned in claim 1 into separate sub-claims and claim 2 made dependent on claim 1 so as to make it clear that even if the restriction requirement is maintained, claim 2 may be subject to rejoinder later. In any case, the applicant maintains its right to seek protection at a later time for all of the subject matter set out in this application either in the present application or in a divisional or divisionals thereof..

As noted above, the applicant does not agree with the restriction requirement and this is traversed. It is submitted that all claims relate to a common general inventive concept and embody the same special technical feature.

The prior art document referred to by the Examiner (RU 2 196 602) discloses the use of a water-soluble compound that is a derivative of fullerene of the general formula $C_{60}-X$, where C_{60} is fullerene nucleus, $X = NH-CHR-COOH$, $NH-(CH_2)_n-COOH$, $NH-CHR-CO-NH-CHR-COOH$; wherein $n=2-6$; and R is a side chain radical of an amino acid or a dipeptide, as an agent for inhibiting viral infections, in particular HIV and CMV-infections (see claim 1 of RU 2 196 602). In other words, the prior art compound is a compound containing a single moiety X attached to fullerene nucleus, i.e. it is a product of nucleophilic **mono-addition** of an aminocarboxylic acid $NH_2-CHR-COOH$ or $NH_2-(CH_2)_n-COOH$ or a dipeptide $NH_2-CHR-CO-NH-CHR-COOH$ via a single double bond of fullerene nucleus.

The specification of RU 2 196 602 specifically mentions the following compounds that were specially synthesized and tested for their chemical/physical properties and biological activity (*the original orthography of the names of the compounds as they appear in the Patent Letters is preserved*):

C₆₀-6-aminocaproic acid, Na salt,

C₆₀-4-aminocaproic acid, Na salt,

C₆₀-DL-serine, Na salt,

C₆₀-L-proline, Na salt,

C₆₀-L-alanine, Na salt,

C₆₀-L-lysine, Na salt,

C₆₀-L-arginine, Na salt,

C₆₀-glycine, Na salt,

C₆₀-glycyl-L asparagine, Na salt,

C₆₀-DL-alanyl-DL-alanine, Na salt,

C₆₀-L-alanyl-L-alanine, Na salt.

On the contrary, the compound of the instant invention is “a water-soluble compound of fullerene polycarboxylic anions of the general formula $C_{60}H_n[NH(CH_2)_mC(O)O^-]_n$, where C₆₀ is the fullerene core, NH(CH₂)_mC(O)O⁻ is the aminocarboxylic anion, m is an integer, preferably 3 and 5, most preferably 5, n is an integer from 2 to 12, preferably from 4 to 6, most preferably 6”. In other words, the compound of the instant invention is a compound containing 2 to 12 moieties X separately attached to fullerene nucleus, i.e. it is a product of nucleophilic **poly-addition** of 2 to 12 moieties of an aminocarboxylic acid NH₂-(CH₂)_n-COOH to several (2 to 12) double bonds of fullerene nucleus.

The specification of the instant application exemplifies the following compounds that were specially synthesized and tested for their chemical/physical properties and biological activity: fullerene-polyamino-butyric acid (ABA);

fullerene-polyamino-caproic acid (ACA);
fullerene-polyamino-octanoic acid (AOA).

As the Examiner may readily see, the compounds of the instant invention are clearly distinct from the compounds of the prior art document in their chemical structure and claim 1 of the instant invention does not read on any of the prior art compounds. Furthermore, the structural distinction of the compounds of the instant invention is responsible for their superior and advantageous properties such as a high solubility in water and other polar solvents, which results in a very high effectiveness of the action of the compounds of the instant invention on infected cells and low toxicity of the claimed compounds. A wide range of antiviral activity is also worth mentioning including such viruses pathogenic to humans as HIV, HSV, HCV.

Last but not least, the prior art document RU 2 196 602 does not teach or even suggest that fullerene derivatives other than those specifically mentioned in the document could be produced using the method mentioned in the document. Furthermore, the document RU 2 196 602 would teach away from the compounds of the instant invention as long as the document explicitly states that using the method described the yield of the target compound is quantitative (i.e., no compounds other than the target compound could be produced).

On the contrary, the compounds of the instant invention are produced using a distinct synthesis method which is also the subject matter of the instant invention (claim 2). The claimed method inherently produces the compounds of the instant invention and therefore should be regarded as specially adapted for the manufacture of said compounds.

Therefore, the feature “a water-soluble compound of fullerene polycarboxylic anions of the general formula $C_{60}H_n[NH(CH_2)_mC(O)O^-]_n$, where C_{60} is the fullerene core, $NH(CH_2)_mC(O)O^-$ is the aminocarboxylic anion, m is an integer, preferably 3 and 5, most preferably 5, n is an integer from 2 to 12, preferably from 4 to 6, most preferably 6” shall be regarded as the “special technical


feature” in the sense of Rule 13.2, that is “a technical feature that defines a contribution which each of the inventions, considered as a whole, makes over the prior art”.

The above special technical feature is common to all claimed inventions and therefore there is a technical relationship between all claimed inventions. Thus, the Applicant maintains that the claimed inventions are so linked as to form a single general inventive concept and that the requirement of unity of inventions is satisfied. The Applicant requests withdrawing the Examiner’s objection on the grounds of the alleged lack of unity of invention.

Having regard to the election of species requirement, it is not clear that the examiner’s position is in conformity with Annex B of Administrative Instruction under PCT where the specific situation of “Markush practice” is exhaustively explained. The Applicant is somewhat confused by the Examiner’s statement that “these species either possess contrasting chemical and/or physical properties (i.e. m is 3 vs. $m=5$ would possess contrasting physical properties)”. The Applicant dares say that no two chemically distinct compounds encompassed by a general Markush formula (no matter how close they are) exist that would have identical chemical and/or physical properties. Contrary to the Examiner’s statement, the Administrative Instruction contains an explicit explanation of a special situation of “Markush practice” in terms of requirements under Rule 13.2: it is a requirement for common property or activity of all claimed alternatives which should be fulfilled. The Applicant maintains that all claimed compounds encompassed by the general formula as set forth in claim 1 share the same activity, i.e. an antiviral activity, more specifically a membrane virus reproduction inhibiting activity.

The above election is made without prejudice to the scope of protection sought and for the sole purpose identified in the Restriction Action as “to elect a single species to which the claims shall be restricted if no generic claim is finally held to be allowable”.

Respectfully submitted,

A handwritten signature in black ink, appearing to be 'JR', written over a horizontal line.

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